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| APPLICATION NO.   | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|-------------|----------------------|---------------------|------------------|
| 10/079,270  | 02/20/2002  | Steven Teig          | SPLX.P0127          | 6274             |
| 23349   | 7590        | 02/13/2004           | EXAMINER            |                  |
| STATTLER JOHANSEN & ADELI<br>P O BOX 51860<br>PALO ALTO, CA 94303 |             |                      | DINH, PAUL          |                  |
|   |             |                      | ART UNIT            | PAPER NUMBER     |
|   |             |                      | 2825                |                  |
| DATE MAILED: 02/13/2004   |             |                      |                     |                  |

Please find below and/or attached an Office communication concerning this application or proceeding.

| <b>Office Action Summary</b> | Application No. | Applicant(s) |
|------------------------------|-----------------|--------------|
|                              | 10/079,270      | TEIG ET AL.  |
|                              | Examiner        | Art Unit     |
|                              | Paul Dinh       | 2825         |

-- The MAILING DATE of this communication app ars on th cov r sheet with th correspondenc address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)  Responsive to communication(s) filed on 14 November 2003.

2a)  This action is **FINAL**.                    2b)  This action is non-final.

3)  Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## **Disposition of Claims**

4)  Claim(s) 1-18 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.

5)  Claim(s) \_\_\_\_\_ is/are allowed.

6)  Claim(s) 1-18 is/are rejected.

7)  Claim(s) \_\_\_\_\_ is/are objected to.

8)  Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

9)  The specification is objected to by the Examiner.

10)  The drawing(s) filed on 02 February 2002 is/are: a)  accepted or b)  objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)  The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)  Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a)  All    b)  Some \* c)  None of:  
1.  Certified copies of the priority documents have been received.  
2.  Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3.  Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1)  Notice of References Cited (PTO-892)  
2)  Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3)  Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 10/27/03 and 11/14

4)  Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_

5)  Notice of Informal Patent Application (PTO-152)

6)  Other: \_\_\_\_\_

***DETAILED ACTION***

This final rejection is a response to the amendment + remarks filed on 10/27/03. The remarks are not persuasive; therefore, the previous rejections based on Rostoker are retained and repeated, see the following details.

***Double Patenting***

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-18 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims (see table below) of copending Application No. 09/732181, 09739460 and 09731891.

| Present invention claims | Copending application<br>No. 09/732181 | Copending application<br>No. 09739460 | Copending application<br>09731891 |
|--------------------------|--|---------------------------------------|-----------------------------------|
| 1, 10                    | 10                                     | 38, 42                                |                                   |
| 2-9, 11-18               | 2-9, 11-18                             |                                       |                                   |
| 1, 10                    |  |                                       | 18-19                             |
| 2-9, 11-18               |  |                                       | 13                                |
| 1, 10                    |  |                                       | 49, 51                            |

Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims in present application are similar to claims in co-pending application as shown.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

*(b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.*

Claims 1-18 are rejected under 35 U.S.C. 102(b) as being anticipated by Rostoker et al. (USP 5742086) who Rostoker discloses a method/program comprising:

(Claims 1, 9-10, 18)

a) for a set of sub-regions (fig 17-19, 73-76, 91-95, 99, also see col 42 for i.e., partitioning), identify a **(Steiner Tree) connection graph (fig 71, col 59 (three directional/diagonal routing Steiner tree)** that connects the set of sub-regions, where the connection graph has at least one edge that is at least partially **diagonal**; and

(Also, Fig 8, 73-78, 83, col 15, 18-19, abstract/background/summary teach **diagonal** nets/lines/wires/nets/interconnects/connects/routes/paths from polydirectional, non-orthogonal or three/tri directional routing/interconnections)

b) identifying a placement cost from an attribute of the connection graph (col 59, col 43 lines 22-30, col 44 line 46+, col 45 lines 21-26).

(Claims 2, 11) col 59, col 40 lines 6-13, col 43 lines 22-30, col 44 line 50+, col 45 line 21-26 teach **length attribute** and placement cost equals the length of the connection graph i.e., higher wiring/routing length = higher cost.

(Claims 3, 12) fig 69-72, col 15 lines 30-42, col 16 lines 4-22, col 17 lines 66-67, col 18 lines 1-10, col 44 lines 46+, col 55 lines 52-60) teach estimating a length of a rout for a routing net that has circuit elements in the set of sub regions.

(Claim 4, 13) before identifying the connection graph, identify the set of sub-regions as the set that contains the set of circuit element (fig 8, 10, 17-19, 73-76, 91-95, 98-99, col 42-43, col 52 lines 66-

67, col 53 lines 1-10) wherein the placement cost is a placement cost for the net (col 59, col 40 lines 6-13, col 43 lines 22-30, col 44 lines 50+, col 45 lines 21-26)

(Claims 5, 14) fig 70-72, 101-103 teaches a storage structure.

(Claims 6, 15) for each net in the circuit layout region

(i) Identifying a set of regions that contains the set of circuit elements (by

Floorplan/partition/subpartitions/ permutation/shape library/selection in fig 98-99, also see col 42 for i.e., partitioning, components, blocks, smaller blocks, subcircuits, modules).

(ii) Identifying a connection graph (fig 6-7, 69-72) that connects the set of sub-regions;

(ii) identifying the length of the connection graph (fig 6-7, 69-72 and/or abstract and/or col 6 line 30+, col 14 lines 66-67, col 15 lines 40-42, col 55 line 52+);

wherein some connection graphs have at least one edge that is at least partially diagonal (fig 5, 8, 73-78, 83, also diagonal nets/lines/wires/nets/interconnects/connects/routes/paths from polydirectional or non-orthogonal or three/tri directional routing/interconnections/connections taught in abstract/background/summary, col 15, 18-19, etc., and/or Steiner tree algorithms for three directional routing as taught in col 59 lines 53-54)

identifying an overall placement cost from the identified length of the connection graph (col 43 lines 22-30, col 45 line 21-28, col 59 line 30-42)

(Claims 7, 16) col line 42 line 35, col 44 line 19+, col 45 line 44, col 53 line 18-19 teaches placement cost quantify the quality of an initial placement

(Claims 8, 17) placing/placer does not necessarily account for wiring/routing, i.e., placing and wiring/routing are two different functions.

#### **Response to the applicant remarks**

Rostoker clearly teaches the limitations in the applicant claimed invention as specifically pointed out and detailed above.

#### **Conclusion**

**THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Paul Dinh whose telephone number is 571-272-1890. The examiner can normally be reached on Monday to Friday from 8:30am to 5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew S. Smith can be reached on 571-272-1907. The fax number for the organization handling this application is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1782.

Paul Dinh

Patent Examiner



MATTHEW SMITH  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800